

# CAMPYLOBACTERIOSIS IN NEVADA, 2003-2012

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Edition 1.3

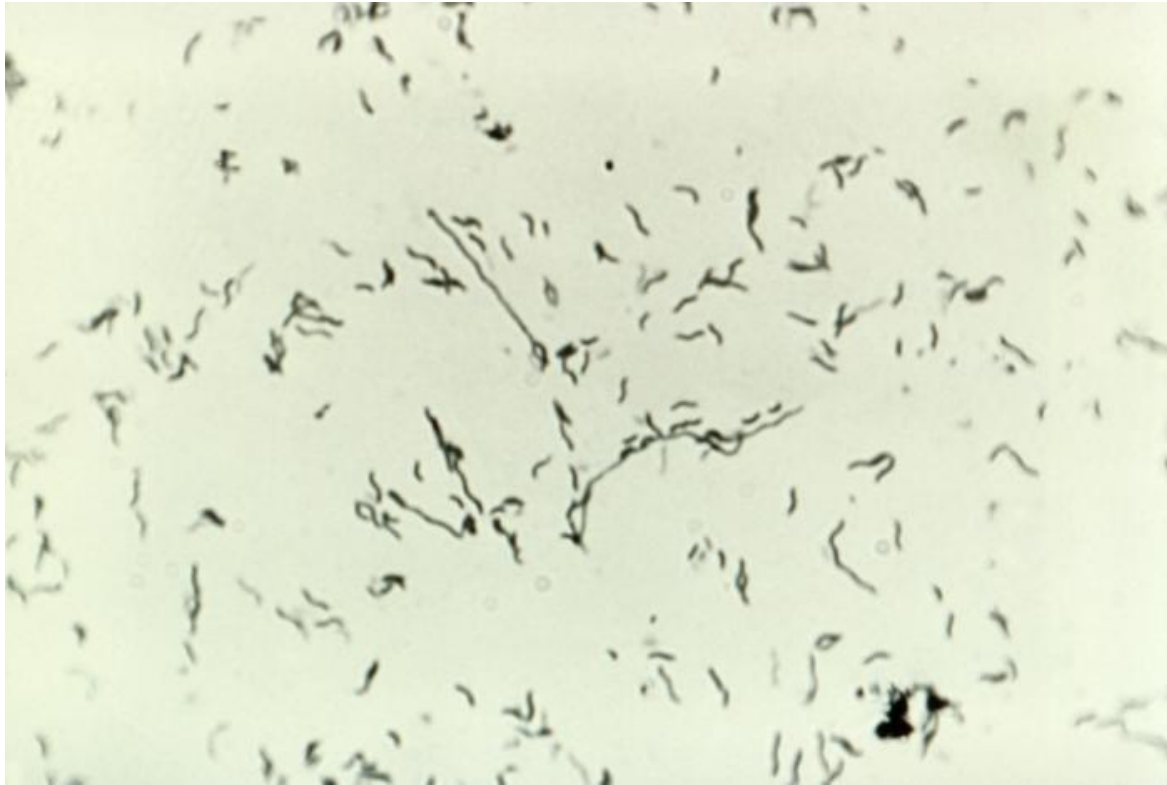


Photo: Centers for Disease Control and Prevention/ Robert Weaver, Ph.D.



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## Purpose

The purpose of this report is to provide a general overview of the incidence and recent trends of campylobacteriosis among Nevada residents. The report also includes Healthy People 2010 objectives, Healthy People 2020 objectives, and Nevada data collected from cases of campylobacteriosis from 2003 to 2012. Campylobacteriosis is listed as one of Nevada's reportable diseases pursuant to [NRS 441A](#) (1). Campylobacteriosis reporting is further regulated by [NAC 441A.480](#) (2).

## Campylobacteriosis

Campylobacteriosis is an infection caused from a *Campylobacter* bacterium and is one of the most common diarrheal illnesses in the United States. The organism is most commonly found in the intestines and liver of chickens. It is easily transferred to raw meat during poultry slaughtering. Without proper sanitation or fully cooking the meat before consumption, one is at a high risk of contracting campylobacteriosis. The bacteria are also found in contaminated water and unpasteurized milk (3).

Symptoms of campylobacteriosis usually appear within 2 to 5 days of being exposed and usually last up to one week. Patients may exhibit diarrhea, abdominal pain, cramping, and fever. Some patients also exhibit bloody diarrhea, nausea, and vomiting, while others do not show any signs or symptoms. Persons with compromised immune systems may develop a life threatening infection from campylobacteriosis because the organism crosses over into the blood stream. Death from campylobacteriosis is uncommon, but it has been estimated that approximately 76 deaths occur from the infection nationally per year (3).

*Campylobacter* infection is diagnosed when the bacterium is present in a stool sample. One of the biggest complications of campylobacteriosis is dehydration due to excessive diarrhea, but most people recover on their own, so treatment is not always necessary. However, individuals with severe disease or those with compromised immune systems are treated with antimicrobial therapy. In rare cases, campylobacteriosis triggers Guillain-Barré syndrome, a condition in which the person's immune system attacks the body's own nerves, resulting in paralysis. Centers for Disease Control and Prevention (CDC) estimates that 1 out of every 1,000 reported cases of campylobacteriosis leads to Guillain-Barré syndrome (3).

Prevention efforts for campylobacteriosis aim at cooking chicken to an internal temperature of 165°F, washing hands before and after handling raw chicken, using a separate cutting board for raw poultry, and thoroughly cleaning any surface or kitchen utensil that comes in contact with raw chicken with soap and hot water. One must also be conscious not to consume unpasteurized milk or untreated water. This advice is more applicable to international travelers in locations where sanitation and food regulations are not as strict as the United States (3).

## Summary

From 2003 to 2012, the annual number of reported campylobacteriosis cases in Nevada ranged from a low of 160 cases in 2005 and 2006 to a high of 214 cases in 2007. Over the ten years, a total of 1,822 cases were reported. The annual crude incidence of campylobacteriosis ranged from a low of 6.4 cases per 100,000 population in 2006 to a high of 8.3 cases per 100,000 population in 2007, but there were no statistically significant differences in campylobacteriosis incidence between the years. The crude incidence rate from 2003 to 2012 was 7.1 cases per 100,000 population.

From 2003 to 2010, Nevada's crude incidence rate of laboratory confirmed campylobacteriosis cases ranged from 5.9 to 7.7 cases per 100,000 population. These rates were statistically significantly lower than the Healthy People 2010 objective for campylobacteriosis (objective: not to exceed an incidence rate of 12.3 laboratory confirmed cases per 100,000 population) (4). In 2011 and 2012, Nevada's crude incidence rates of laboratory confirmed campylobacteriosis were 6.8 and 5.7 cases per 100,000 population, respectively. These rates are also significantly lower than the Healthy People 2020 objective (objective: not to exceed an incidence rate of 8.5 laboratory confirmed cases per 100,000 population) (5).

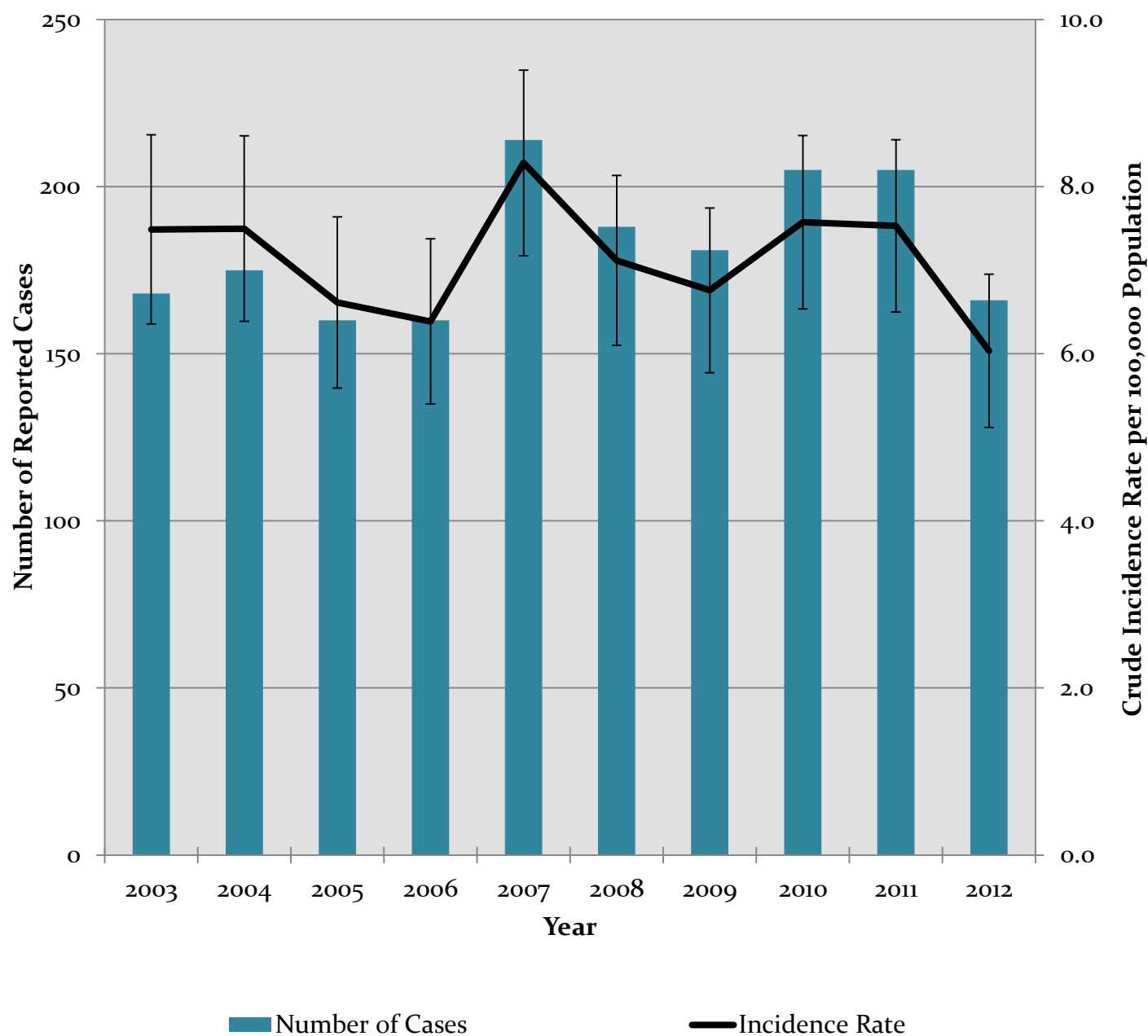
Southern Nevada Health District had a significantly lower age-adjusted incidence rate (5.6 cases per 100,000 population) than the overall age-adjusted incidence rate for the state (7.1 cases per 100,000 population). Carson City Health and Human Services and Washoe County Health District had significantly higher age-adjusted incidence rates (10.3 and 9.8 cases per 100,000 population, respectively) than southern Nevada and the overall state rate. The rural and frontier counties also had a significantly higher age-adjusted incidence rate (13.2 cases per 100,000 population) than southern Nevada, Washoe County, and the overall state rate.

Like most foodborne diseases, campylobacteriosis cases typically increase during summer and decline in fall and winter. Between 2008 and 2012 (years for which monthly data is available), campylobacteriosis infections followed this pattern with few exceptions. Cases start to increase in May, peak in August, decline in September, and remain low during winter. However, two anomalies were observed: January consistently had a higher number of cases than other winter and early spring months; and in March 2010, a large increase in the number of campylobacteriosis cases was reported (34 cases), much higher than any other month or year during the 5-year time span. The number of reported cases ranged between 7 and 34 cases per month, depending on the year.

From 2003 to 2012, a significantly higher age-adjusted incidence rate (7.7 cases per 100,000 population) was observed among residents of Hispanic origin compared to Blacks and Asian/Pacific Islanders (3.7 and 5.1 cases per 100,000 population, respectively). Whites also had a significantly higher age-adjusted incidence rate (7.1 cases per 100,000 population) compared to Blacks and Asian/Pacific Islanders. There were no other significant differences between other race/ethnic groups.

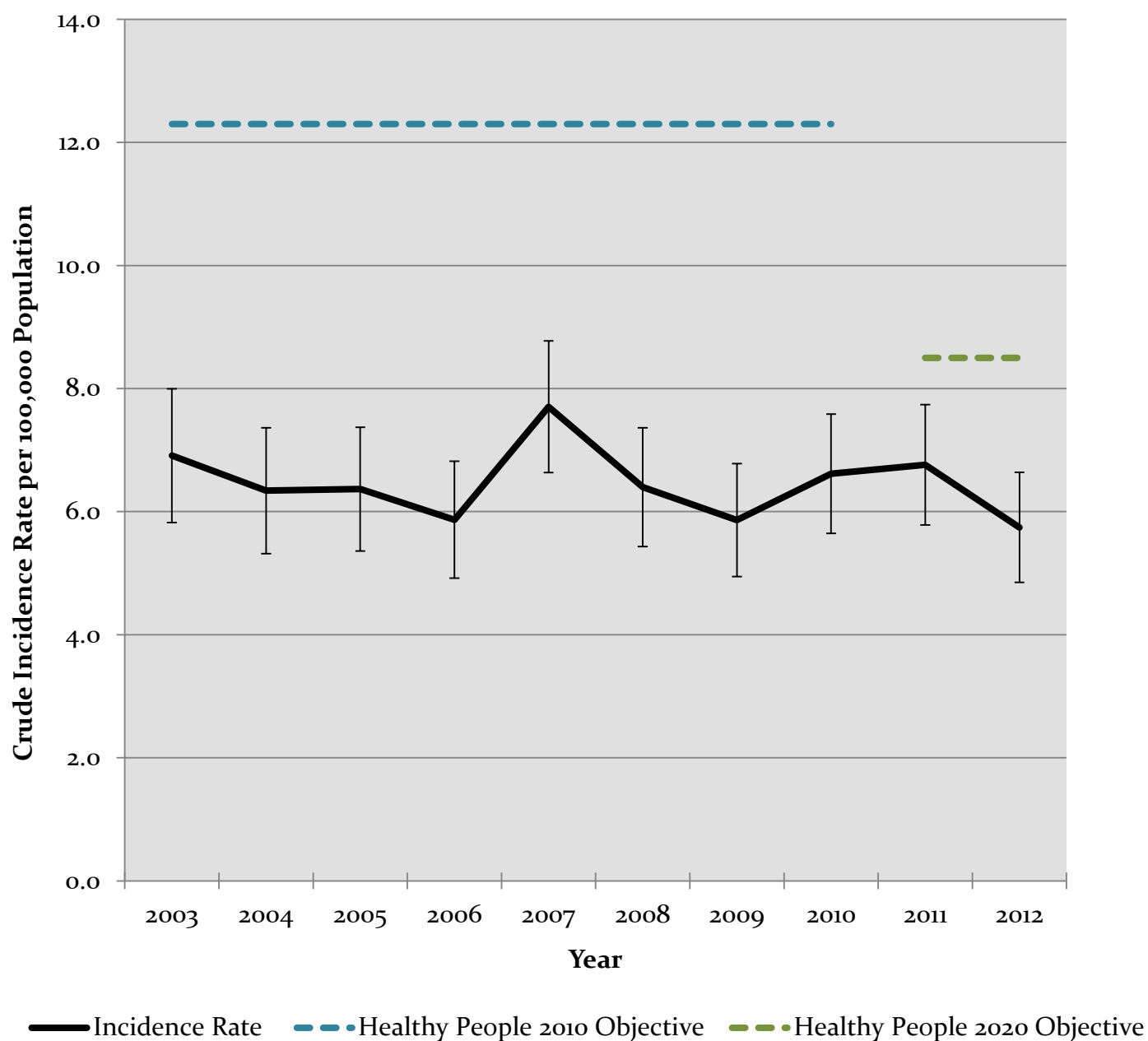
From 2003 to 2012, the highest case count of campylobacteriosis in Nevada was in persons 40-64 years of age, with 2011 having the largest total number of cases, 68. Nevertheless, during the 10-year time period, infants under 1 year of age and children 1-4 years of age had a significantly higher incidence rate compared to the other age groups (14.9 and 17.0 cases per 100,000 population, respectively). The peak age-specific incidence rate for children 1-4 years of age was in 2004 at 24.7 cases per 100,000 population.

**Figure 1. Number of Reported Cases and Crude Incidence Rates of Campylobacteriosis in Nevada: 2003-2012**

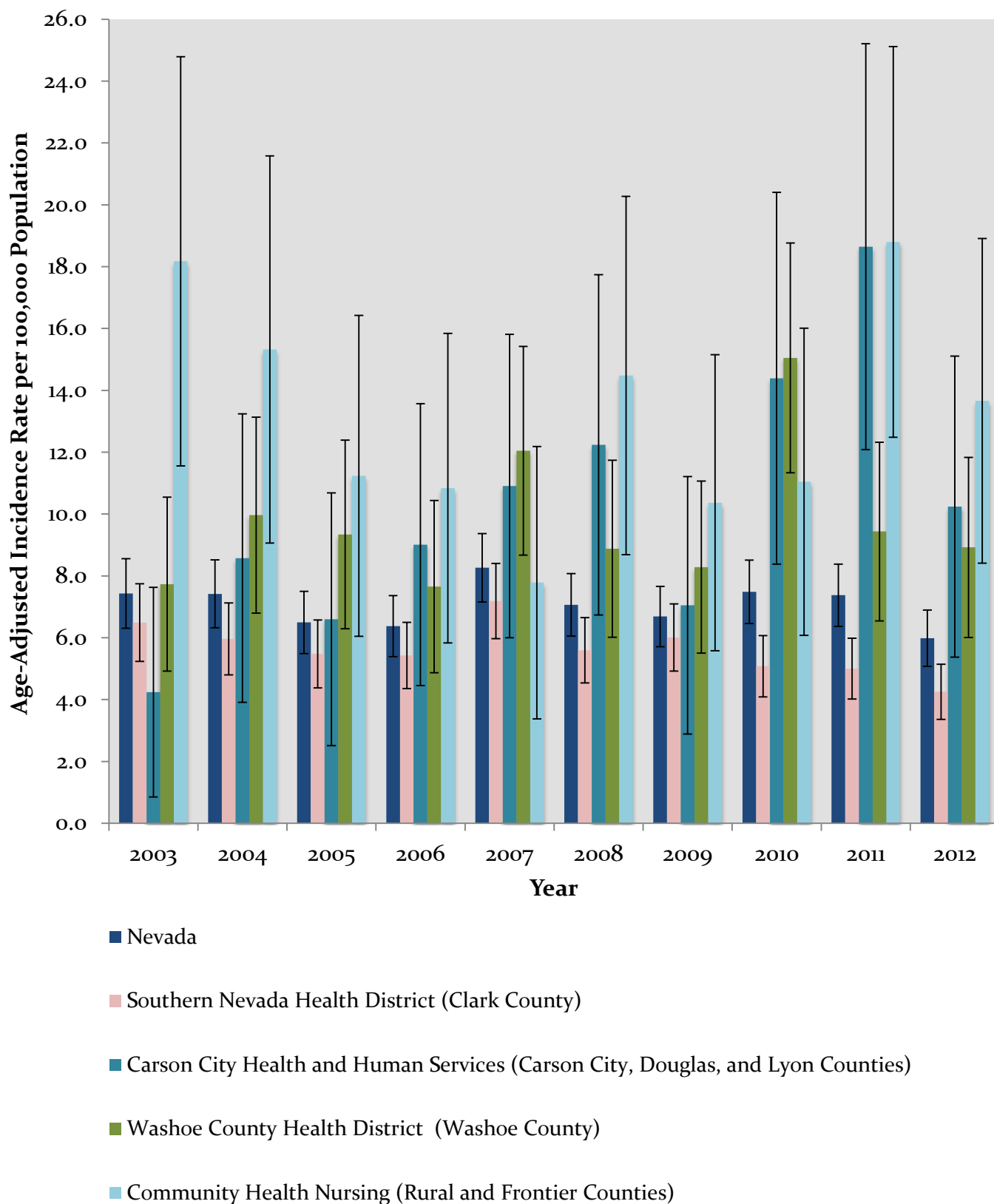


The crude incidence rate in Nevada from 2003 to 2012 was 7.1 cases per 100,000 population.

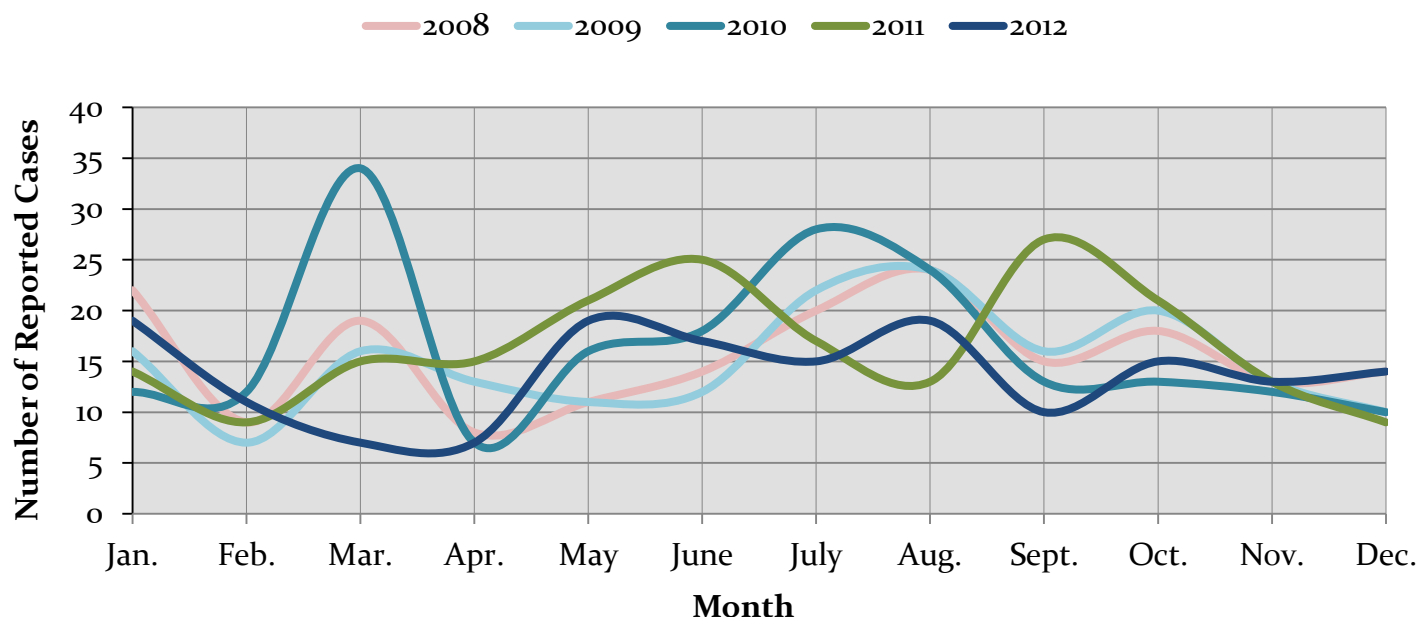
**Figure 2. Crude Incidence Rates of Laboratory Confirmed Campylobacteriosis Cases in Nevada Compared to Healthy People Objectives: 2003-2012**



**Figure 3. Age-Adjusted Incidence Rates of Campylobacteriosis in Nevada and Nevada Health Districts: 2003-2012**

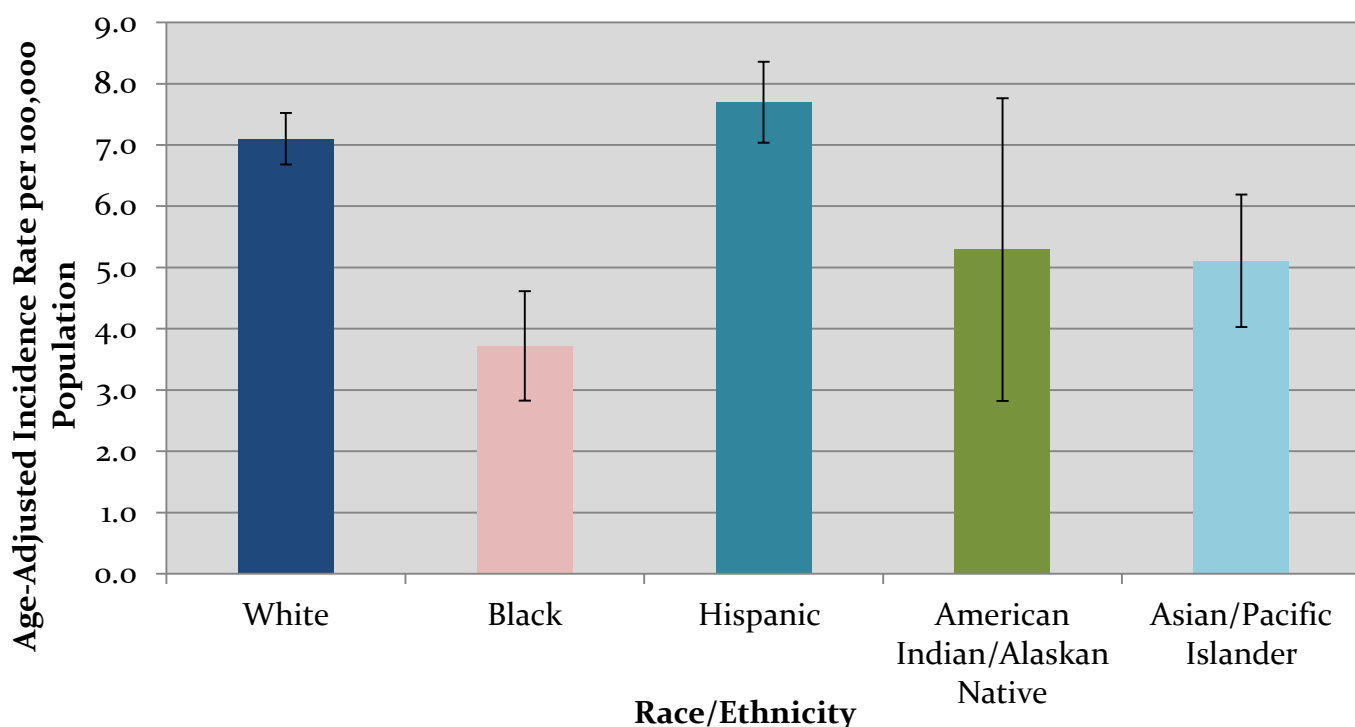


**Figure 4. Number of Campylobacteriosis Cases\* Reported in Nevada by Month: 2008-2012**



\*14 cases with missing data are excluded from this figure.

**Figure 5. Age-Adjusted Incidence Rates of Campylobacteriosis in Nevada by Race/Ethnicity\*: 2003-2012**



\*If Hispanic ethnicity was reported with a race, cases were categorized as Hispanic; therefore, all races can be considered non-Hispanic.

# Figures 6A-G. Number of Reported Cases and Crude Incidence Rates of Campylobacteriosis in Nevada by Age Group: 2003-2012

Figure 6A. Campylobacteriosis Cases and Incidence Rates in Infants Under 1 Year of Age

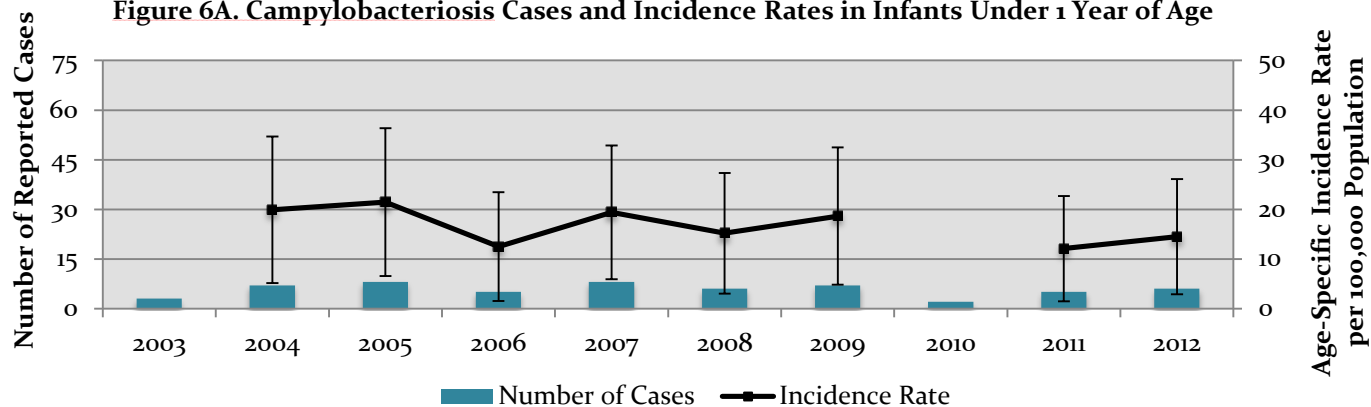


Figure 6B. Campylobacteriosis Cases and Incidence Rates in Children 1-4 Years of Age

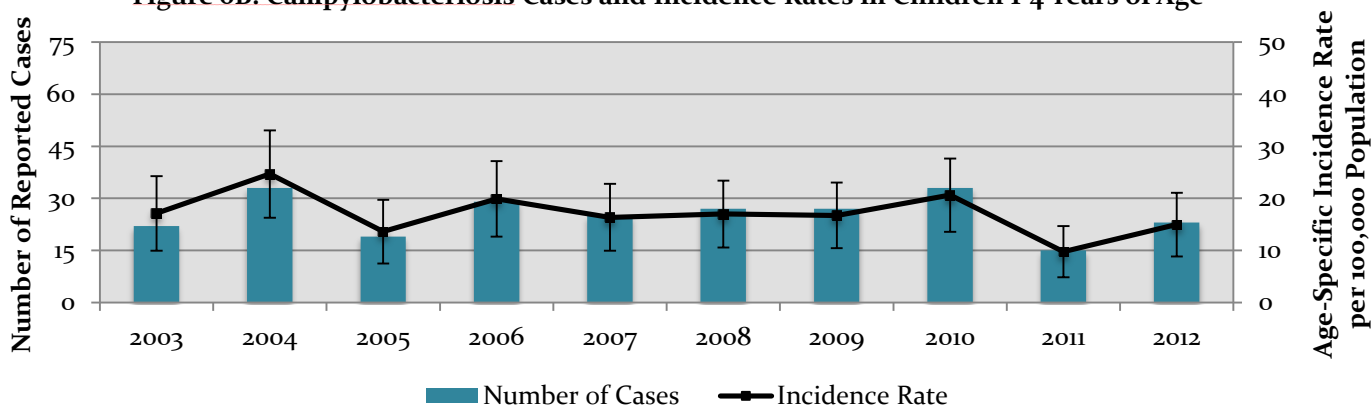


Figure 6C. Campylobacteriosis Cases and Incidence Rates in Persons 5-14 Years of Age

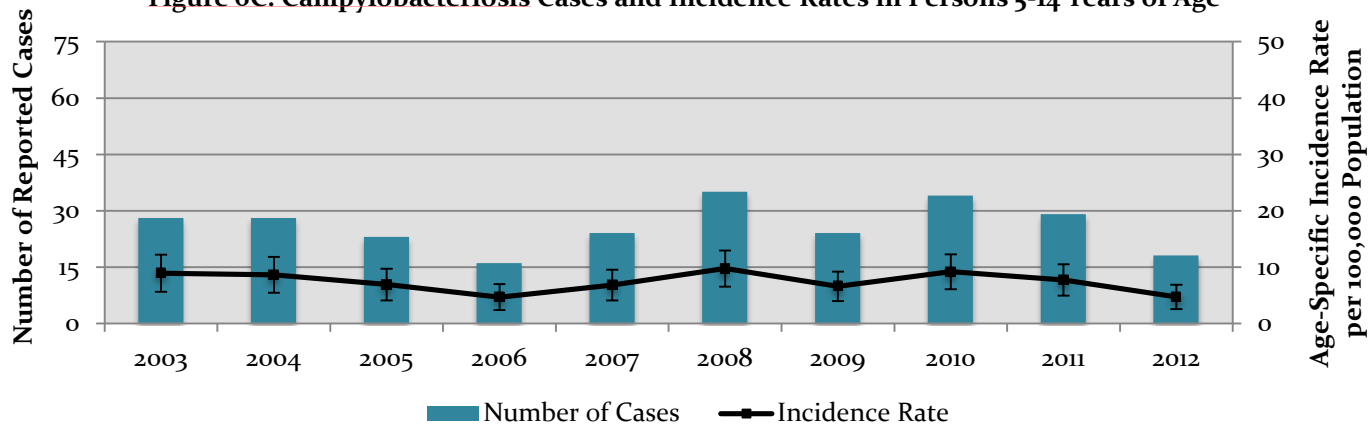


Figure 6D. Campylobacteriosis Cases and Incidence Rates in Persons 15-24 Years of Age

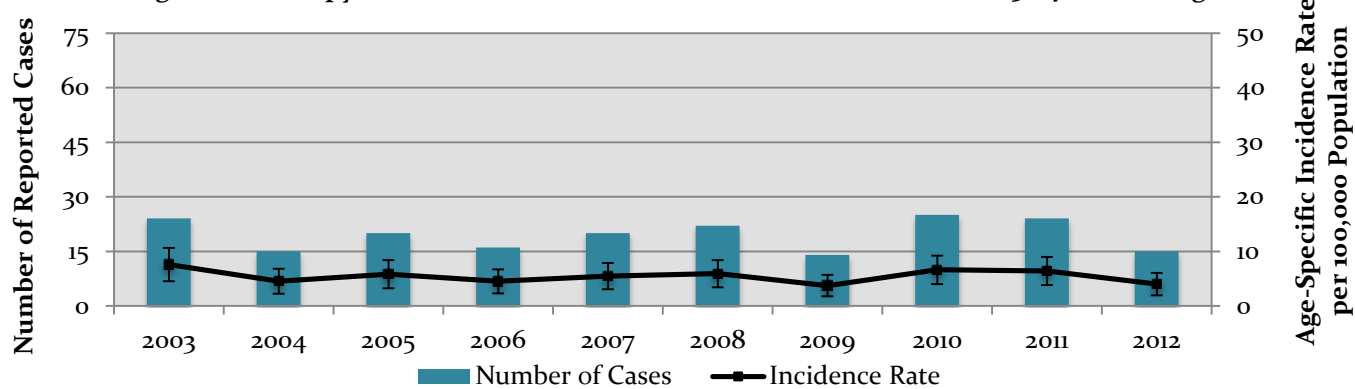


Figure 6E. Campylobacteriosis Cases and Incidence Rates in Persons 25-39 Years of Age

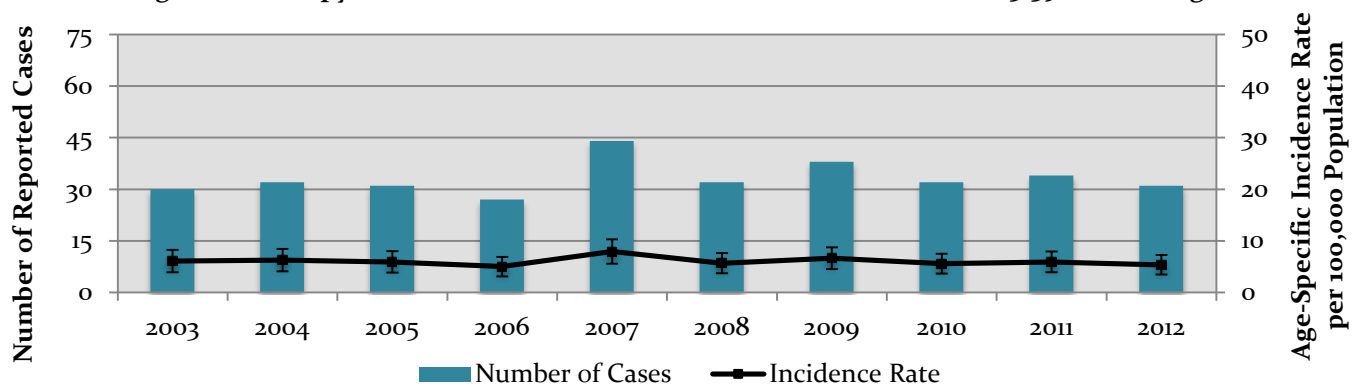


Figure 6F. Campylobacteriosis Cases and Incidence Rates in Persons 40-64 Years of Age

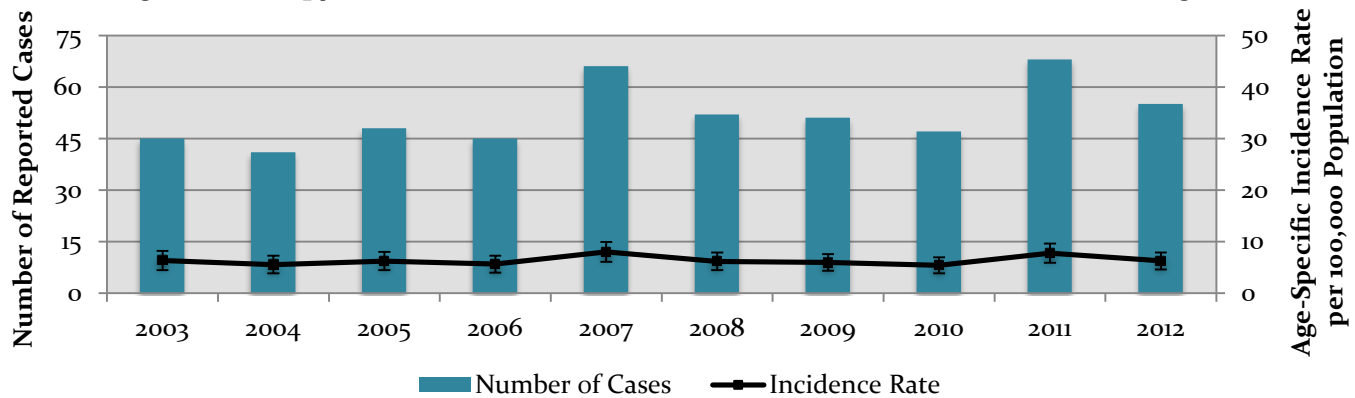
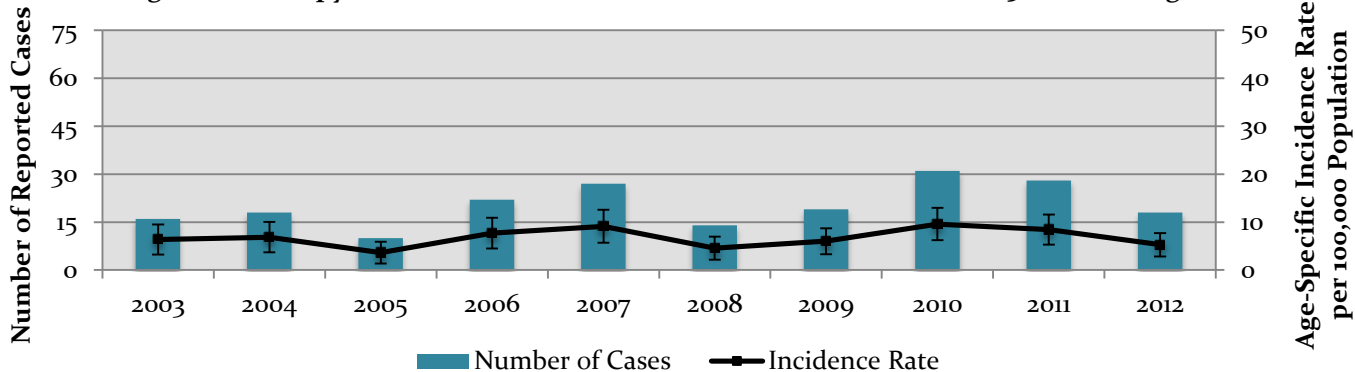


Figure 6G. Campylobacteriosis Cases and Incidence Rates in Persons 65+ Years of Age



## Technical Notes

All Nevada data from 2003 to 2012 came from reported *Campylobacter* infections among Nevada residents (6, 7). The CDC and Council of State and Territorial Epidemiologists case definition of campylobacteriosis encompasses all cases classified as suspected, probable, or confirmed; all cases of campylobacteriosis used for this report follow this definition (8). Population estimates were obtained from Nevada State Demographer's Office (9). Age-adjusted rates per 100,000 population were calculated using the 2000 U.S. standard population. Cases with unknown ages were excluded from the age-adjusted rate calculations; 7 such cases had to be excluded. Cases with unknown race/ethnicity (281 cases) were imputed among racial/ethnic groups based upon the distribution of each racial/ethnic group within the general population. Cases with race and ethnicity listed as "other" or those with multiple races were excluded from Figure 5; 29 such cases were excluded. When used for rates, error bars represent 95% confidence intervals. The Keyfitz method was used to calculate confidence intervals of age-adjusted rates (10). Due to their inherent unreliability, rates were not calculated for case counts lower than five.

## Sources

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## Recommended Citation

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